

in a box with a set of drawings and short paragraphs covering: habit, stem, and/or chemical characters; leaves; reproductive structures; distribution; economic value; and fossil record. Woodland is to be commended for including the major tropical and arid-adapted families of angiosperms and, thus, giving a global perspective. Unfortunately, the illustrations are generally of poor quality. Much page space is wasted and reduction for printing has thickened and fused lines and obscured details that might have been in the originals. Most of the close-ups do not show the distinctive features they are supposed to illustrate. Example: Anther flaps are not shown on anthers of Lauraceae. Fourteen families of (the 27 recognized) leptosporangiate homosporous ferns are treated; neither the drawings nor the descriptions are especially helpful to the novice in differentiating or recognizing any particular segregate family. To a certain extent, the included CD of the University of Wisconsin's *Photo Atlas of the Vascular Plants* makes up for these deficiencies, but I found the interface to be less than self-explanatory and the images to include too few floral dissections.

There is a number of annoying minor problems (the examples listed here either remain uncorrected from the second edition or were introduced with the third). The hardback binding is low quality and probably will not hold up well with extended use. The typesetting was poorly proofed. For example, on page 410 one finds "from a wide spectra [sic] of sources" and on page 416 "phylomes (e.g., leaf and leaf homologs), and trichomes (homes [sic])." In Table 1.1 illustrating the taxonomic hierarchy, the Magnoliineae is listed as the suborder under the Asterales and above the Asteraceae! A number of the drawings were redrawn with permission from various sources, especially Cronquist's *An Integrated System of Classification of Flowering Plants*. In an apparent oversight, Correll and Correll's *Flora of the Bahama Archipelago*, in which Pricilla Fawcett's plate of *Zamila pumila* was published (Fig. 25), is not cited as the source of the original from which the illustration of *Zamia* (p. 64) was undoubtedly redrawn.

Whether other instructors will find this book useful for adoption will depend on how closely their students' backgrounds and needs and their own teaching philosophy matches Woodland's. *Contemporary Plant Systematics* would be more cost-effective if the family surveys (and illustrated glossary of morphological terms) were replaced with a short, several-page synopsis of groups of families and if the book were designed to use a professionally illustrated companion atlas, such as Wendy Zomlefer's *Guide to Flowering Plant Families*.—Roger W. Sanders, Associate Collections Manager, Botanical Research Institute of Texas.

M.S. MANI and J.M. SARAVANAN. 1999. **Pollination Ecology and Evolution in Compositae (Asteraceae)**. (ISBN 1-57808-058-4, pbk.). Sciences Publishers, Inc., P.O. Box 699, May Street, Enfield, NH 03748, U.S.A. \$49.50 + shipping. 166 pp. Line drawings, tables, and figures.

Mani and Saravanan have produced a very thorough account of our current understanding of the details of pollination in the largest and most complex family of flowering plants. The book begins with a brief summary of past and current research on pollination in general and on Compositae in particular. This section is particularly well referenced, and is a wonderful resource for anyone interested in the topic. An entire section of the book is devoted to an analysis of the groups of insects that are commonly found on the flowers in the Composite family, and on their effectiveness as pollinators. Special note is made of those insects that, while serving as pollinators, may also do considerable damage to the plants as well. There are six chapters devoted to detailed discussion of specific parts of the composite capitulum, and their development in relation to pollination. One chapter presents a detailed discussion of the overall structure and multitude of variations found in the capitula of this family. This chapter is particularly well illustrated with line drawings, showing

detailed comparisons of the arrangement of florets, and the involucre. A second, particularly well-illustrated chapter, discusses the variety of shapes, sizes and colors of the florets, and how this diversification can be directly linked with effectiveness of pollination. An entire chapter is also devoted to the wide variety of shapes and sizes of stamens, styles and stigmas. This chapter points out the importance of the structural differences of these organs, and how pollinators have influenced the evolution of those differences. Chapters on nectaries and pappus complete the discussion of the specializations found in composite capitula. Mixed in with the chapters on each of the floral organs is a section on sexual polymorphism within the Compositae. In this author's opinion, this chapter is a bit misplaced, and would better fit in with the discussion on the overall structure of the capitulum. However, other than being misplaced within the overall context of the book, the chapter is well written and well referenced. The final three chapters bring all of this information together with a well-presented discussion of floral biology, pollination and evolutionary trends within the family. This book is very well written and thoroughly researched. It includes a glossary of terms which is quite useful, especially for those not familiar with terminology specific to the Compositae. The entire volume is well referenced, with nearly 450 citations contributing significantly to the importance of this work. I would recommend this volume to all students of the Compositae, and to anyone who is interested in pollination biology in general.—*Debra Trock*.

ALAN HOPKINS (Editor). 1999. **Grass: Its Production and Utilization. Third Edition.** (ISBN 0-632-05017-9, pbk.). Blackwell Science Ltd., 350 Main Street, Malden, MA 02148-5018, U.S.A. Distributed for Blackwell Science by Iowa State University Press, 2121 South State Street, Ames, IA 50014-8300, U.S.A. (Orders: 800-862-6657, 515-292-0155; www.isupress.edu). \$49.95 pbk. xiii + 440 pp., numerous figures.

It has been a treat to review this book, and here is why: for many years I was a biology professor at Kansas State University, which is located in the tallgrass prairie of a notably grassy state. There I was familiar with the native grasslands, plus the management and utilization of grasslands for many purposes. The book under review centers upon British grasslands, and it offers a different dimension to an American's thinking about grasslands.

The text consists of fifteen chapters that are essentially free-standing essays of about 15–30 pages, each with a several page list of references. Most of the cited papers are from the past decade. There are chapters on pastures, herbage production, weeds & pests in grasslands, feeding values of grass (50 pages), conservation, forage and grazing behavior, landscape and wildlife, etc. There is no coverage of grassland systematics. Two chapters drew my attention; one on sward establishment and renovation, and the other on amenity grassland. The climate of Britain comfortably supports lawns of great expanse (swards), and tough turf for athletic or decorative purposes (amenity grass), and the approach to lawn and turf management is rather different from what we are accustomed to. The introductory chapter is an absolute gem for summarizing the thrusts of book and for supplying a grass-oriented land-use map of Great Britain.

How useful would this book be to a North American biologist? Anyone dealing with the applied ecology and physiology of grasslands would find it relevant, especially anyone whose studies focus on intensely managed grasslands. The literature citations are particularly valuable, for they are largely from the European literature that is less commonly surveyed by Americans.—*Theodore M. Barkley, Botanical Research Institute of Texas*.